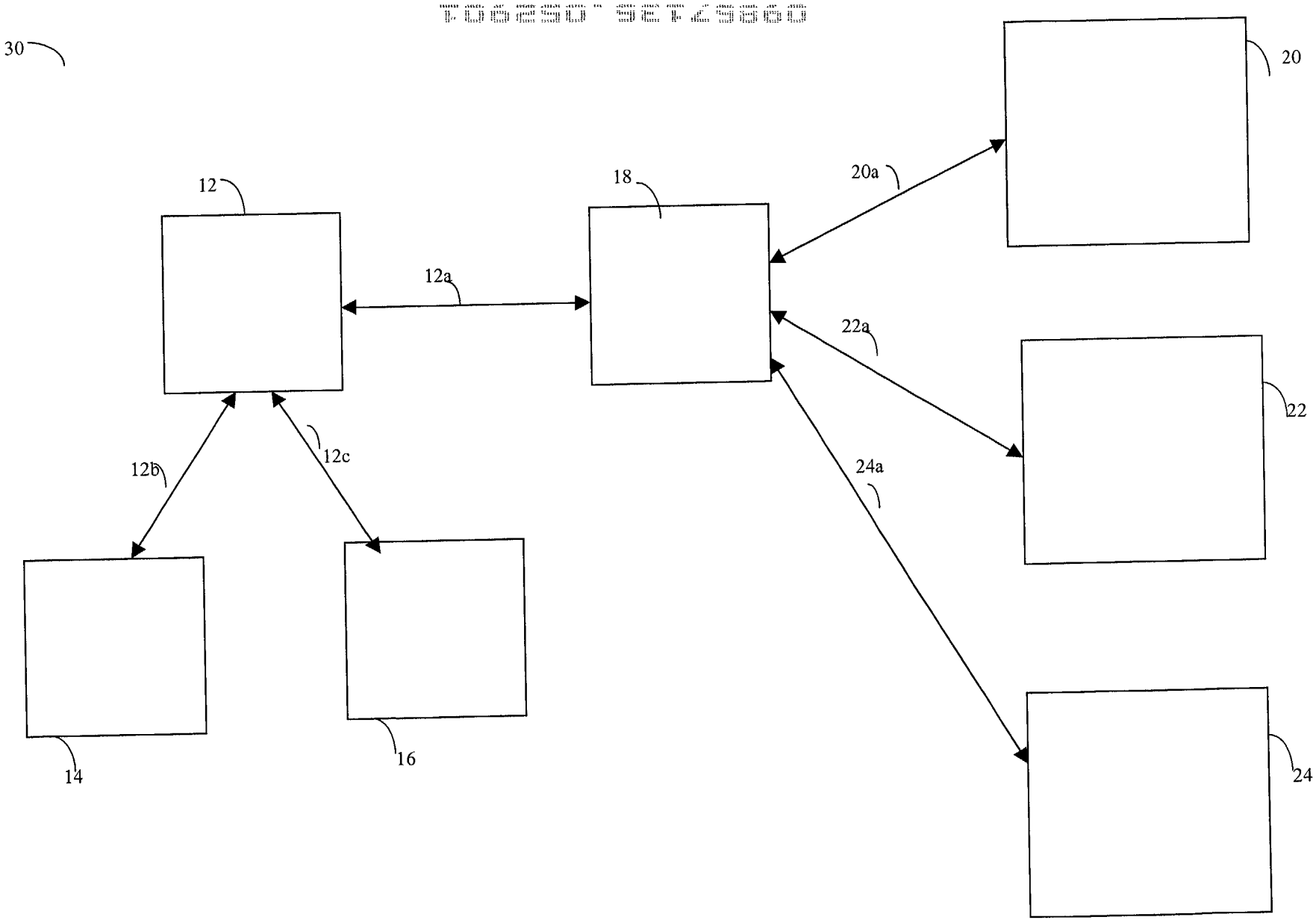


FIGURE 1

Document Received

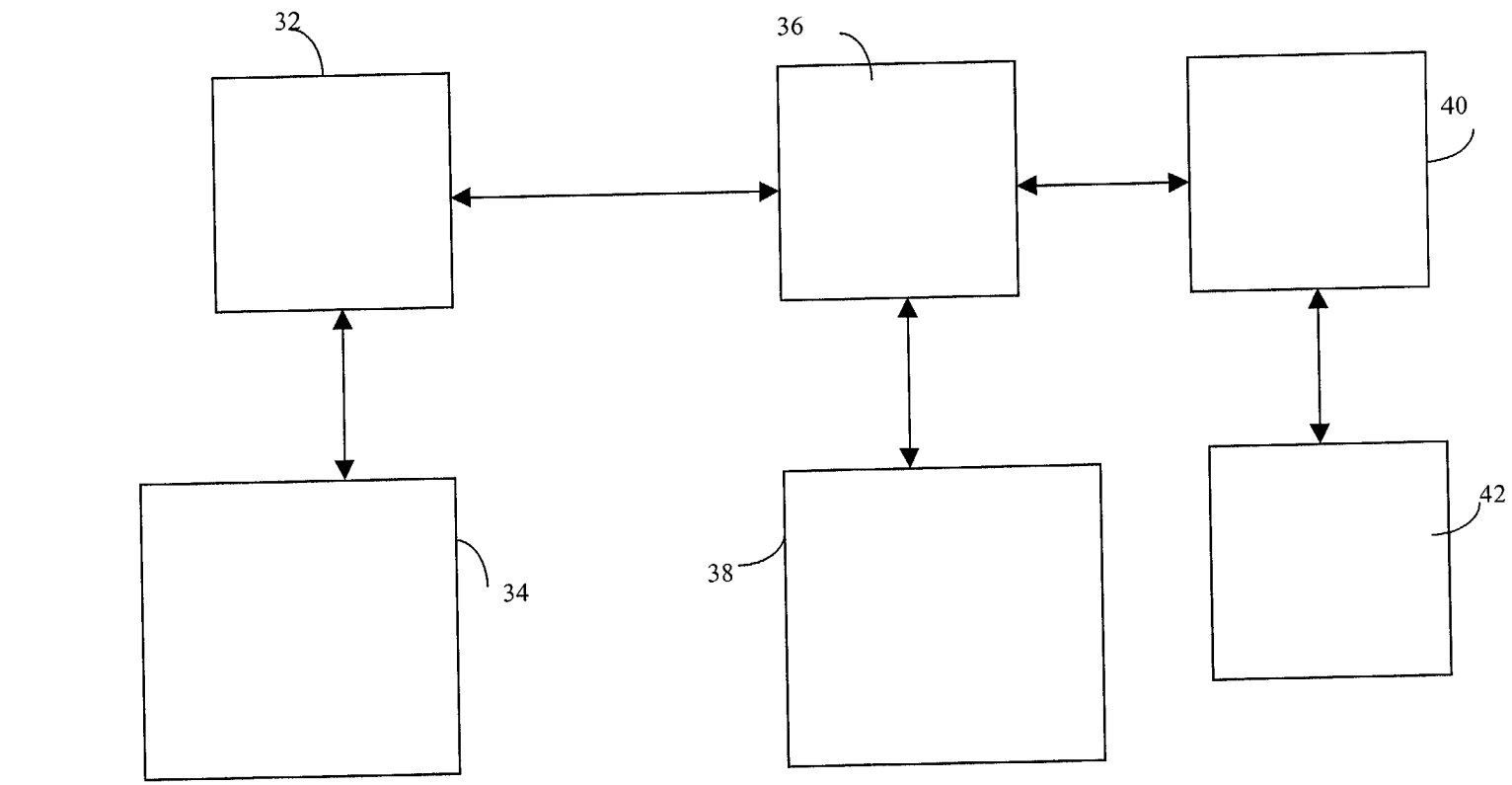


FIGURE 2

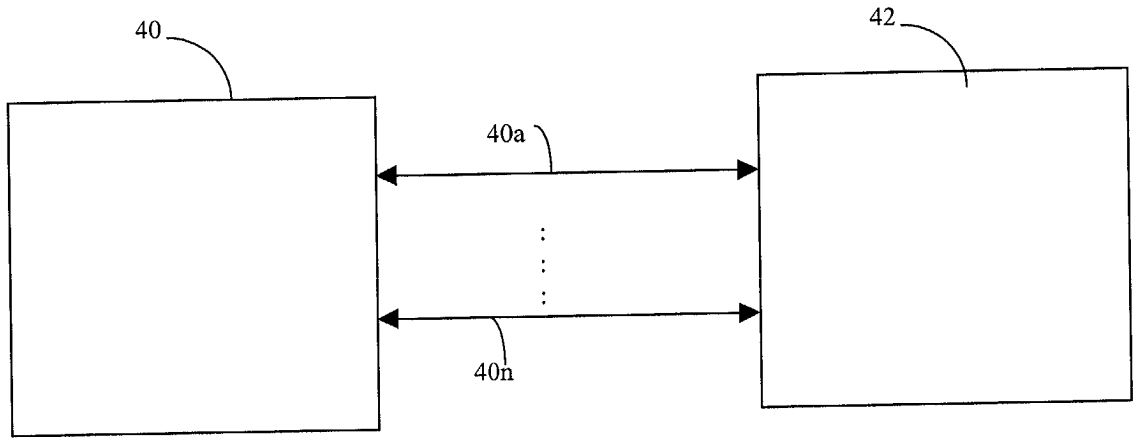


FIGURE 3

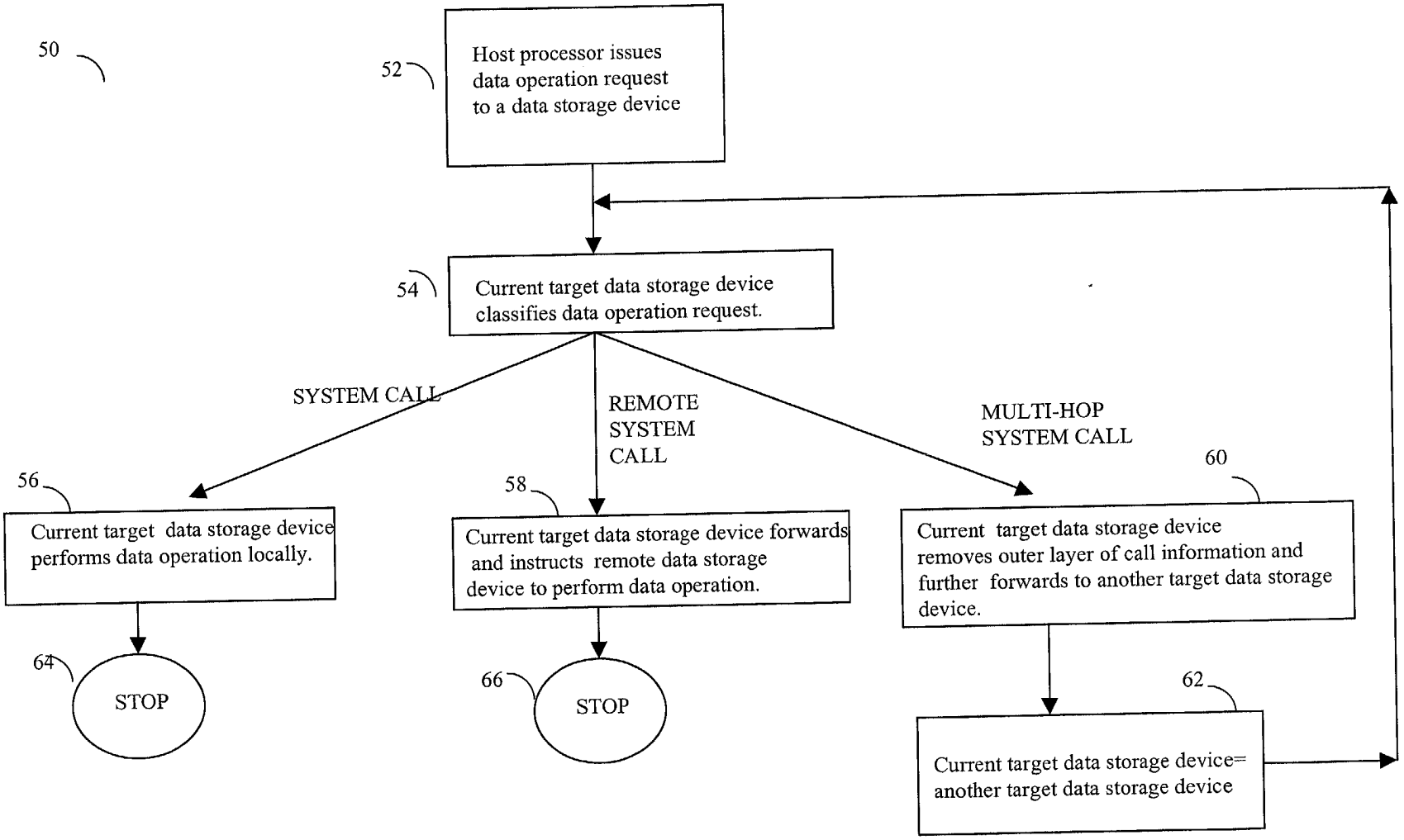

50
52
Host processor issues data operation request to a data storage device
54
Current target data storage device classifies data operation request.
SYSTEM CALL
REMOTE SYSTEM CALL
MULTI-HOP SYSTEM CALL
56
Current target data storage device performs data operation locally.
58
Current target data storage device forwards and instructs remote data storage device to perform data operation.
60
Current target data storage device removes outer layer of call information and further forwards to another target data storage device.
64
STOP
66
STOP
62
Current target data storage device= another target data storage device

FIGURE 4

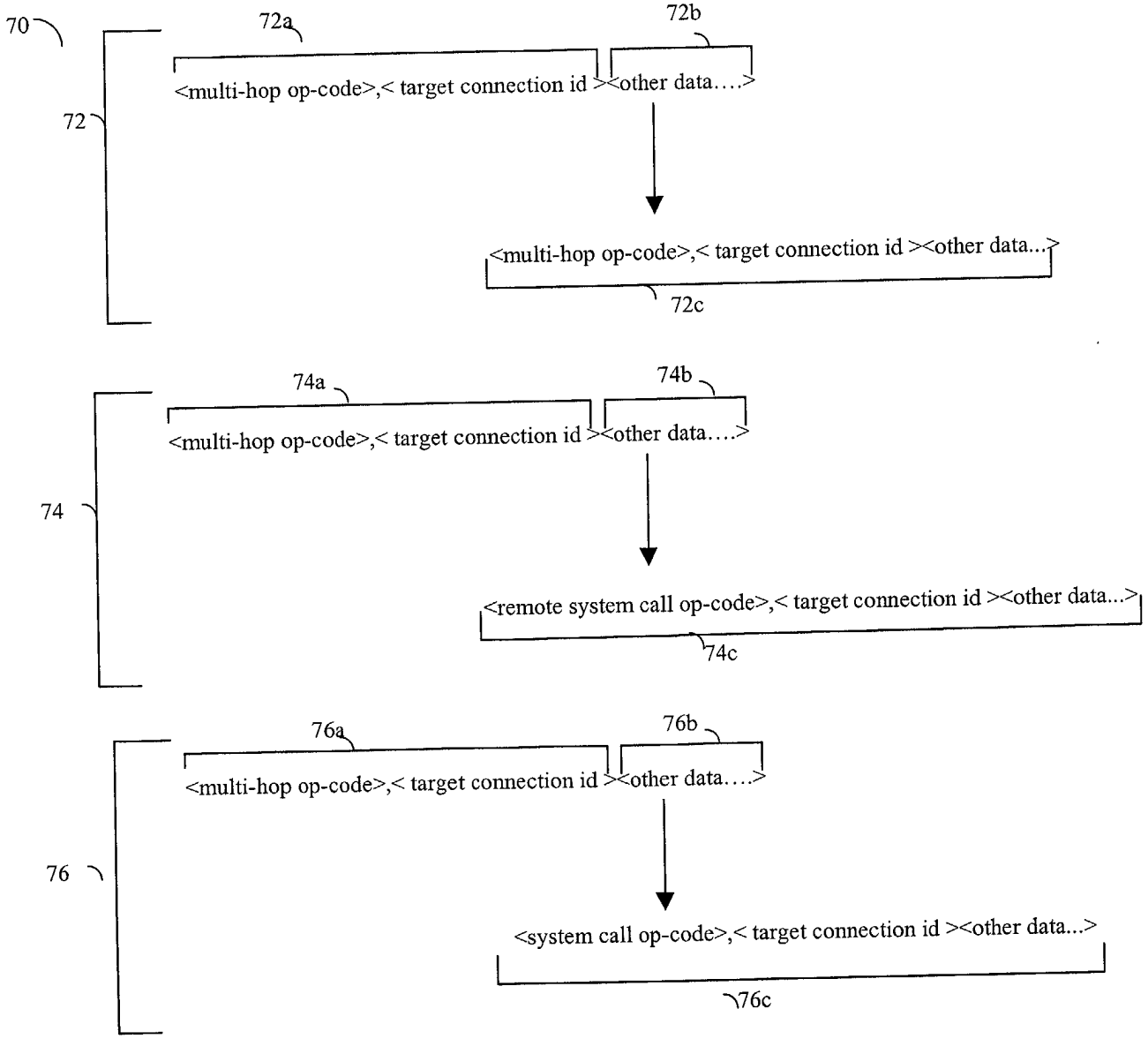
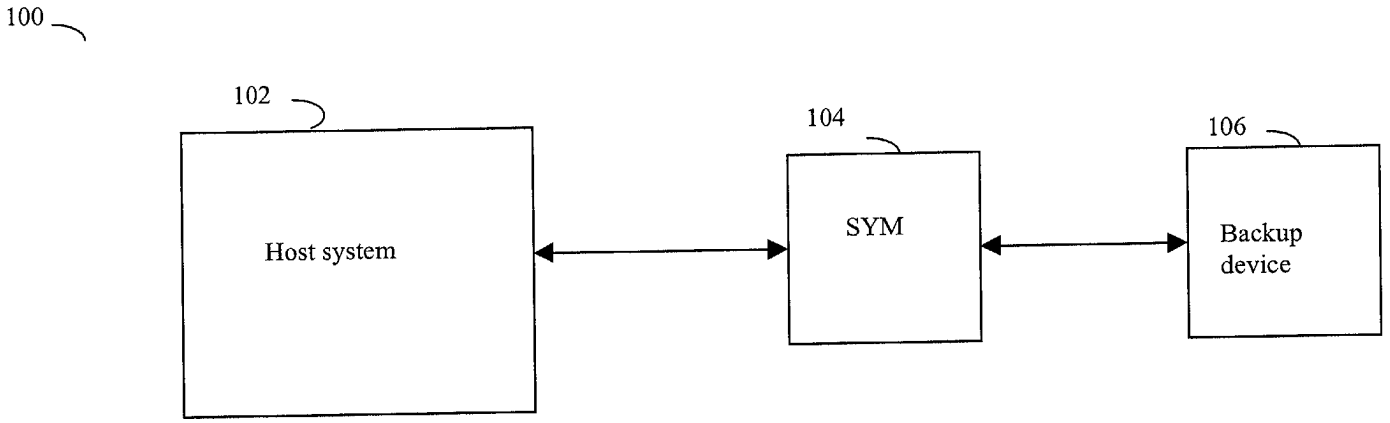

70
72a
72b
<multi-hop op-code>,< target connection id ><other data....>
72
<multi-hop op-code>,< target connection id ><other data...>
72c
74a
74b
<multi-hop op-code>,< target connection id ><other data....>
74
<remote system call op-code>,< target connection id ><other data...>
74c
76a
76b
<multi-hop op-code>,< target connection id ><other data....>
76
<system call op-code>,< target connection id ><other data...>
76c

FIGURE 5



PRIOR ART

FIGURE 6

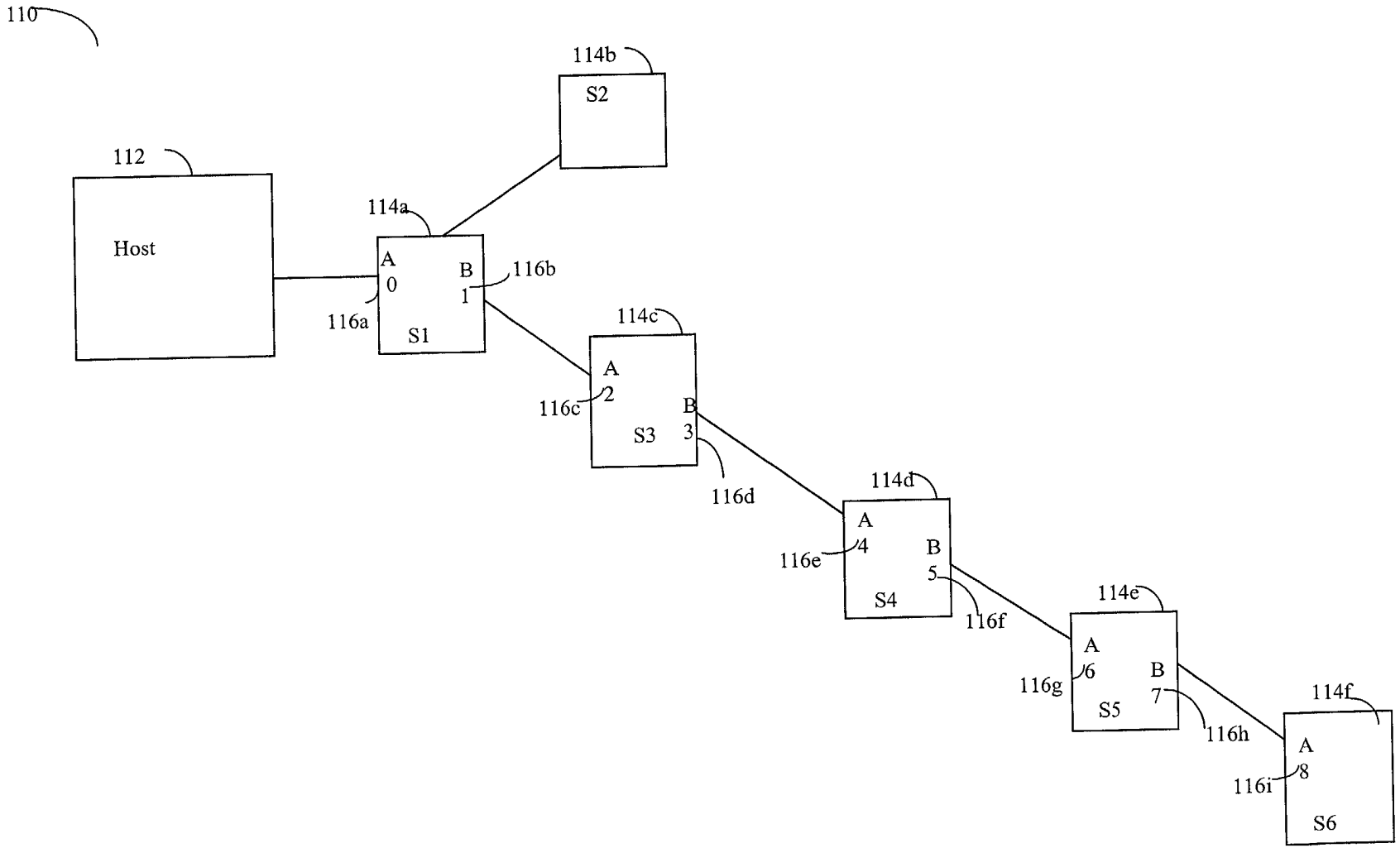

110
114b
S2
112
Host
114a
A
0
B
1
116b
116a
S1
114c
A
2
116c
B
3
S3
116d
114d
A
4
116e
B
5
S4
116f
114e
A
6
116g
B
7
S5
116h
114f
A
8
116i
S6

FIGURE 7

Docket 3E-129860

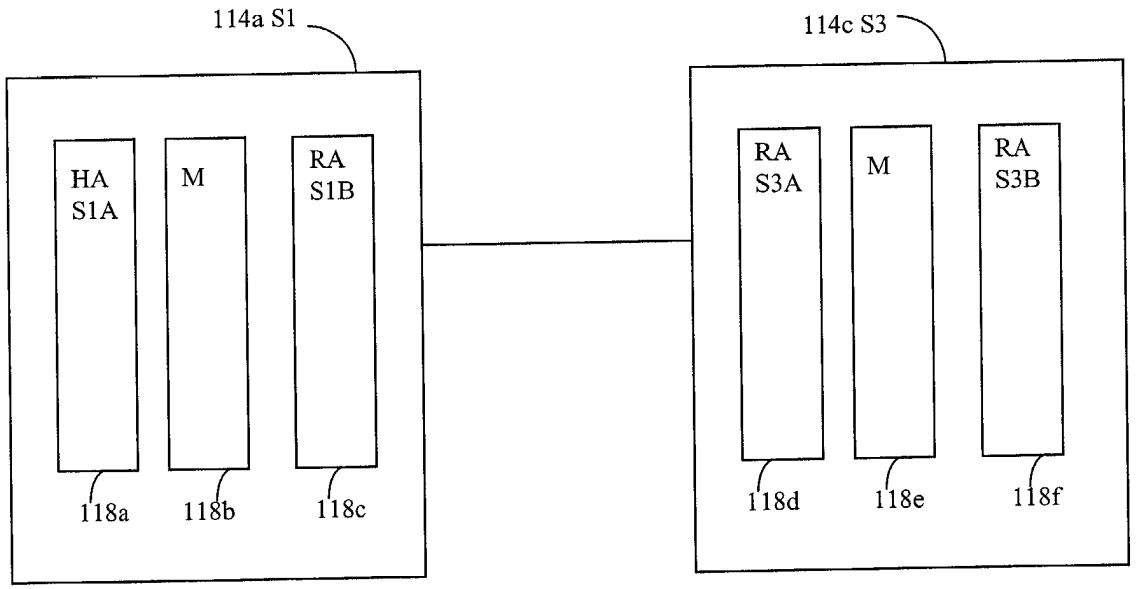


FIGURE 8

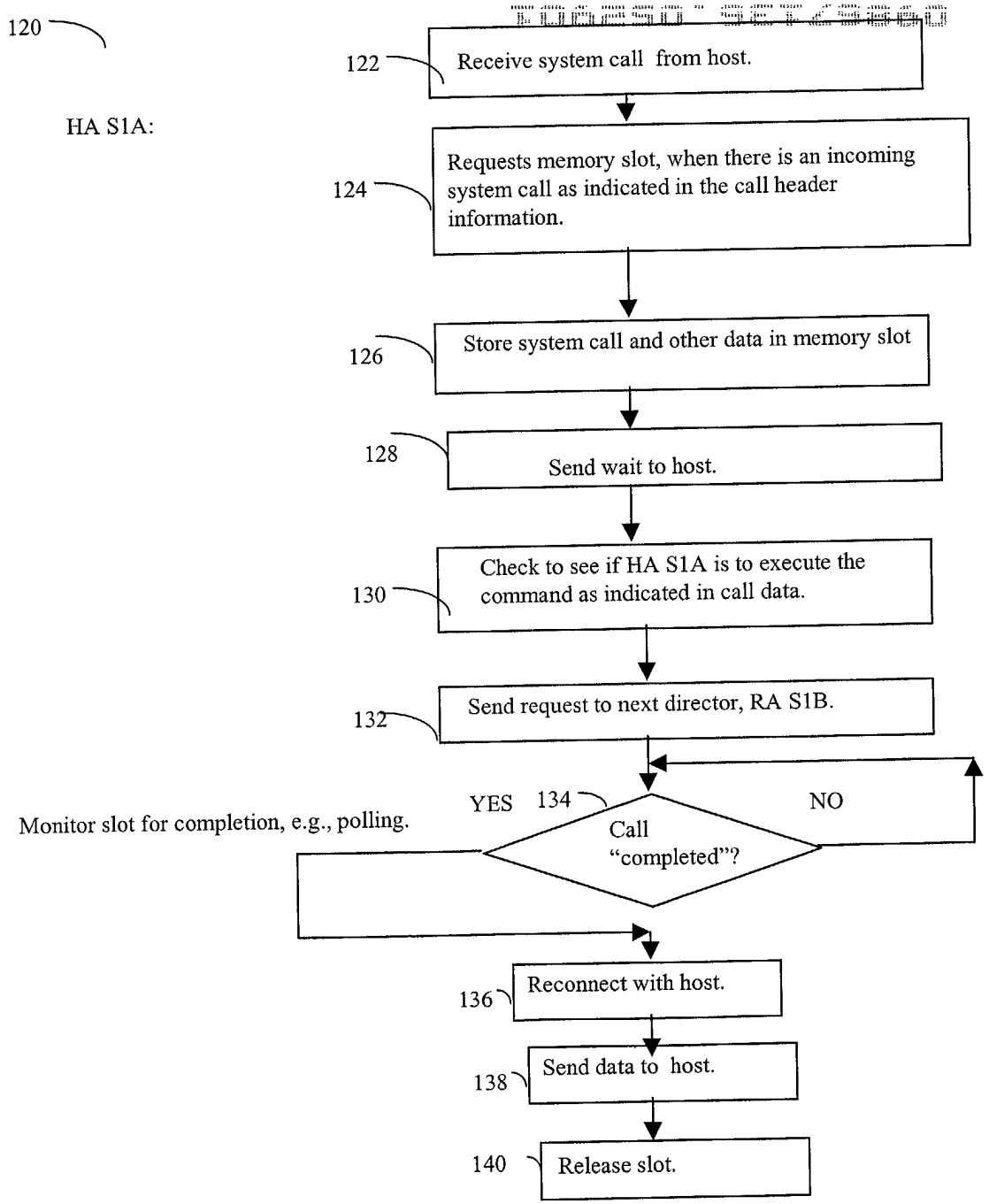

120
HA S1A:
122
Receive system call from host.
124
Requests memory slot, when there is an incoming system call as indicated in the call header information.
126
Store system call and other data in memory slot
128
Send wait to host.
130
Check to see if HA S1A is to execute the command as indicated in call data.
132
Send request to next director, RA S1B.
Monitor slot for completion, e.g., polling.
YES
134
NO
Call "completed"?
136
Reconnect with host.
138
Send data to host.
140
Release slot.

FIGURE 9

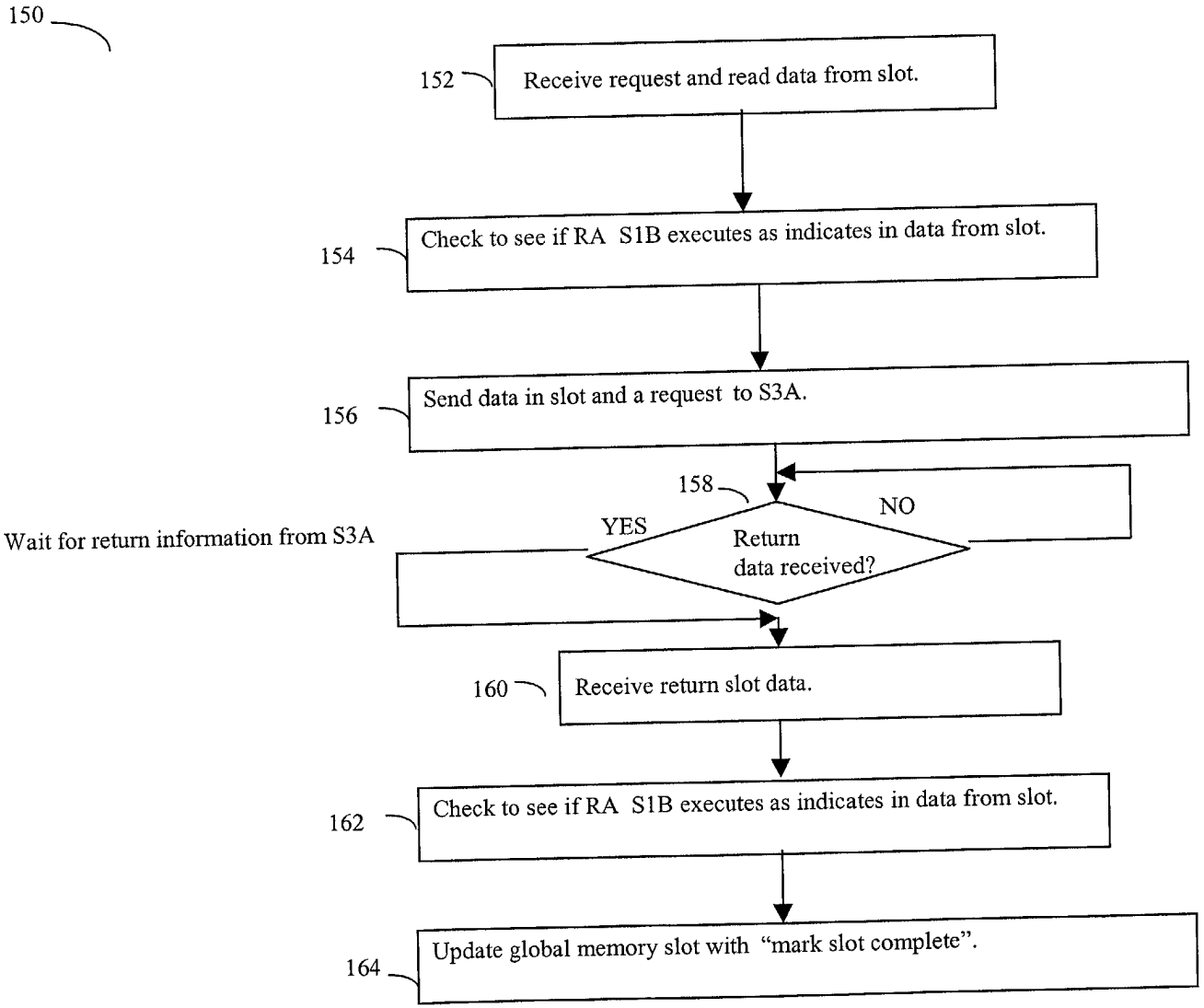

150
152
Receive request and read data from slot.
154
Check to see if RA S1B executes as indicates in data from slot.
156
Send data in slot and a request to S3A.
158
Wait for return information from S3A
YES
NO
Return data received?
160
Receive return slot data.
162
Check to see if RA S1B executes as indicates in data from slot.
164
Update global memory slot with "mark slot complete".

FIGURE 10

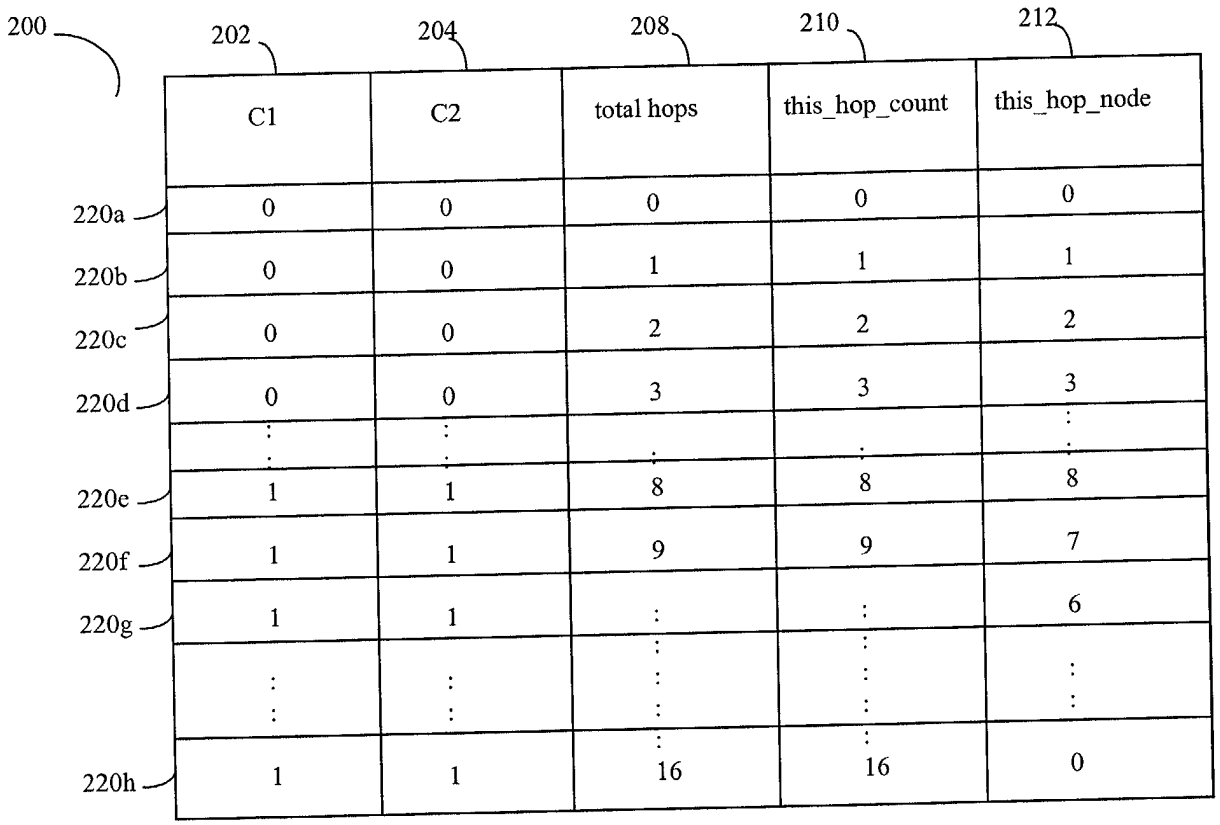

200
202
204
208
210
212
C1
C2
total hops
this_hop_count
this_hop_node
220a
220b
220c
220d
220e
220f
220g
220h
0 0 0 0 0
0 0 1 1 1
0 0 2 2 2
0 0 3 3 3
1 1 8 8 8
1 1 9 9 7
1 1 6
1 1 16 16 0

FIGURE 11